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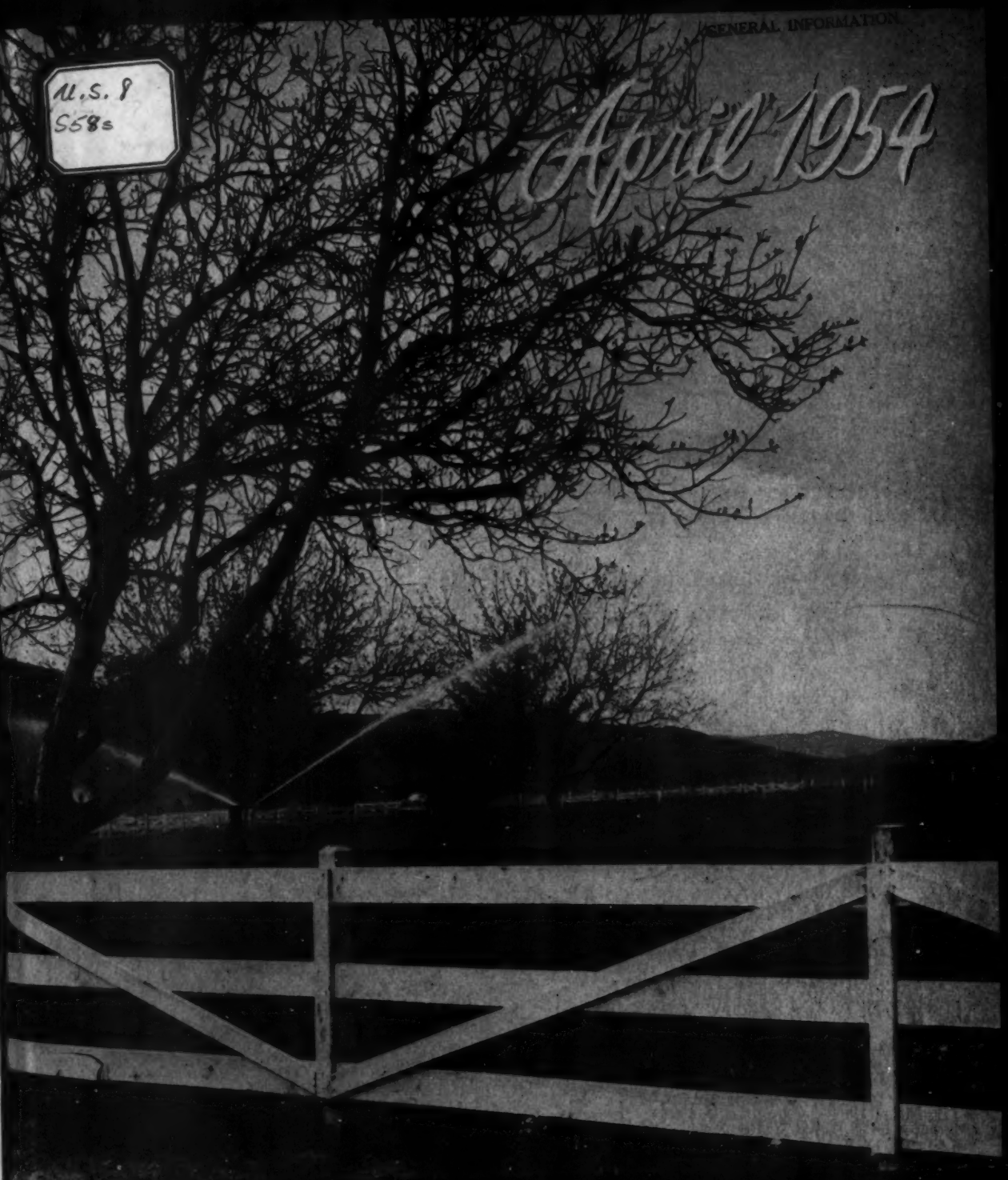

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SOIL CONSERVATION •

EZRA TAFT BENSON
SECRETARY OF AGRICULTURE

DONALD A. WILLIAMS
ADMINISTRATOR, SOIL CONSERVATION SERVICE

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★ THIS MONTH ★

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WELLINGTON BRINK
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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MINNESOTA'S 1953 AIR TOURS.—The "Soil Conservation Air Tour" was again used in Minnesota last year, as a medium of public education. Between May and October, 13 such events were held with 17 districts participating. A total of 1,568 passengers were carried over routes selected in advance by Soil Conservation Service personnel and county agents. At two of these tours the passengers were flown free of charge, by members of the Minnesota Flying Farmers Association. At the others flight was by commercial operators and charges were $3 to $3.50 per person.

Some Minnesota soil conservation districts have conducted these tours for 3 years, and in most cases they will become an annual event. Observers taking the tour on consecutive years are impressed by the growth of the soil conservation program.

Most of the credit for the success of these educational trips should go to supervisors of districts involved. Also, a great deal of work has been done by county agents and farm planners, in selecting routes and in "briefing" participants.

The Minnesota Soil Conservation Committee, the Minnesota Flying Farmers Association, airport operators, and the Minnesota Department of Aeronautics cooperated in conducting the events.

—RAY BROWN

FRONT COVER.—Spring comes to the famous Palomar Angus Ranch in Pauma Valley, near Valley Center, Calif. When this picture was made in 1952 there were more than 500 acres of modern sprinkler- and surface-irrigated pastures in this ranch. Replacing foxtail and other poor growths under a conservation plan are alfalfa, orchardgrass, birdsfoot trefoil, tall fescue, and ryegrass. Photo by Wellington Brink.

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Flooded Farms Back in Business

Farmsteads flooded by the Missouri River near Council Bluffs, Spring of '52.

By W. H. LATHROP

Large acreage of Iowa's good cornland is returned to production on schedule and at a third of the anticipated cost.

THE last vestige of 1952 flood damage to the extensive drainage systems of West Iowa farmlands had been erased by the opening of 1954 through an emergency program authorized by Congress. In less than 18 months the Soil Conservation Service had repaired all damage to 208 miles of drainage systems stretching two-thirds of the way across Iowa. And the job was done for a third of the original estimates.

When waters of the record April 1952 flood receded, despairing farmers found thousands of acres of their best corn and small grainland buried under a load of sand and silt up to 6 feet in depth. An area of 212,000 acres, some of Iowa's best cornland, was unfit for cultivation.

Under the leadership of Congressman Ben Jensen, Congress rushed through an emergency appropriation to reclaim flood-damaged land in Iowa and Missouri. The Soil Conservation Service was assigned the job of channel restoration, also technical responsibility for all land reclamation for which farmers received part payment from the Agriculture Conservation Program.

The work in Iowa started August 11, 1952, and was completed December 31, 1953, the scheduled completion date. In the 18-month period drainage had been re-established on 1,063 farms, and in addition 208 miles of ditching and 26 miles of levees had been repaired. Under the ACP program 6,527 acres of land had been reclaimed by deep-plowing and 8,600 acres of scoured land had been leveled.

Good Iowa cornland like this is worth reclaiming.

Clyde Spry, Iowa Secretary of Agriculture, credits soil conservation districts for prompt completion and low cost of this reclamation project. District commissioners in the flood area helped obtain the cooperation of farmers, drainage board trustees, county boards of supervisors, and others.

Preliminary estimates had set the cost of the emergency program in Iowa at $3,000,000. Instead the total cost came to $916,341, and of that amount farmers and local interests footed the bill for $153,774. Of the funds actually allocated for work in Iowa, $169,700 was turned back to the Treasury.

Best of all, more than a thousand Iowa farmers who were nearly wiped out by the flood, are back in business producing food for the Nation.

How silted land looks after drying.

"Science" of Snow Taught in West

There's no substitute for skis in many situations.

"School" provides instruction on "crop" that can mean wealth or disaster. Skis still are basic in this atom age.

By LAWRENCE E. DAVIES

Reprinted from *The New York Times* by special permission

SHOD with snowshoes and skis, key members of a battalion that estimates the worth of the arid West's most valuable "crop," in January completed a 5-day "graduate school" course at McCall, Idaho, in the Payette National Forest.

The "crop" is the winter's snow pack. It is a crop that, if of ample yield and if the "harvest" goes off well, means untold millions of dollars annually to irrigation farmers, stockmen, power and water-using industries and municipalities. It can be the backbone of the regional economy.

A bumper "crop" may mean disastrous floods, and a deficient one may bring drought, power shortages, idle industries and regional brownouts.

These contrasting possibilities—a prosperous year or a discouraging one—stem from the fact that an estimated average of 80 percent of the flow of Western rivers from April through September comes from melting snows in the mountains.

Federal agencies and private power companies want to empty storage reservoirs if floods threaten during that period. Irrigation districts want to be sure of full reservoirs when their growing season begins. Bankers want to know the water prospects before making loans to farmers.

It is worth millions, therefore, to know how much snow lies in the mountains.

Seventy-five men, instructors and students, who are charged with measuring the snow pack or helping with water forecasts, attended the School, sponsored by the Soil Conservation Service of the Federal Department of Agriculture.

Newer men in the Service learned how to organize snow surveys, deal with avalanches, dig or fashion shelters if injured or lost on survey trips and take their boots and socks to bed with them to ensure dry feet the next day.

They headed for their homes convinced that the time had not yet come for them to throw away their skis and snowshoes. That equipment remains standard, despite increasing use of the airplane and the other motor vehicles that chug over the snow, and despite experimentation with costly gadgets that measure the snow pack with the aid of radioactive isotopes and Geiger counters and radio the results automatically from remote stations.

Nevertheless, the trend in snow survey work is "toward fewer and better-trained men traveling faster and farther in dependable machines, on the snow or in the air," according to R. Arch Work of Portland, Oreg. He is the soil conservation official heading the cooperative snow survey work of the entire Western United States, in which Government agencies, state and private industries take part.

Work said almost 900 surveyors participated in the measurement last year. They measured 1,180 snow courses—strategic areas usually selected near the headwaters of streams—and in so doing traveled some 28,000 miles on foot over some of the most rugged terrain in the West.

They covered 9,000 miles on machines, which traverse snowfields much faster, as a rule, than skiers but which cannot surmount all the obstacles that a surveyor afoot can overcome. They also flew an estimated 3,000 miles.

"In 6 years ending in 1952-1953," Work reported, "without an appreciable increase in financing, 6 percent fewer men accomplished 28 percent more work without increasing foot travel in the mountains. Oversnow machine travel increased more than 300 percent. We have not had a fatal accident in snow surveyors' ranks in the last half million miles.

Whether on foot or riding various types of snow vehicles, which were demonstrated here and which every person at the school was taught to operate, surveyors followed the same measuring procedure, according to W. T. (Jack) Frost, Oregon snow survey leader.

They first found the steel marker of the snow course. Then they plunged a snow sampler—a hollow tube—to the full depth of the pack and weighed the tube with its core of snow.

The tube had first been weighed without snow. The difference represented the weight of the snow. Its density, or water content, was computed. Determining this water content is a basic objective of the survey, since the density varies widely with seasons and with areas.

Morlan W. Nelson, snow survey leader from Idaho and the Columbia Basin and program chairman for the training school, said that sometimes 100 inches of snow would produce only 50 inches of water. Sometimes 75 inches of snow would yield water 60 inches deep.

Mr. Nelson cautioned that to ensure the greatest accuracy of forecast the amount of moisture in the soil beneath the snow also had to be determined. Here in the Columbia Basin the measurement data are assembled in his office and the forecasts are a joint responsibility of the Soil Conservation Service and the Weather Bureau.

Their findings, he asserted, could "spot a catastrophic flood by April 1 and pinpoint it by May 1."

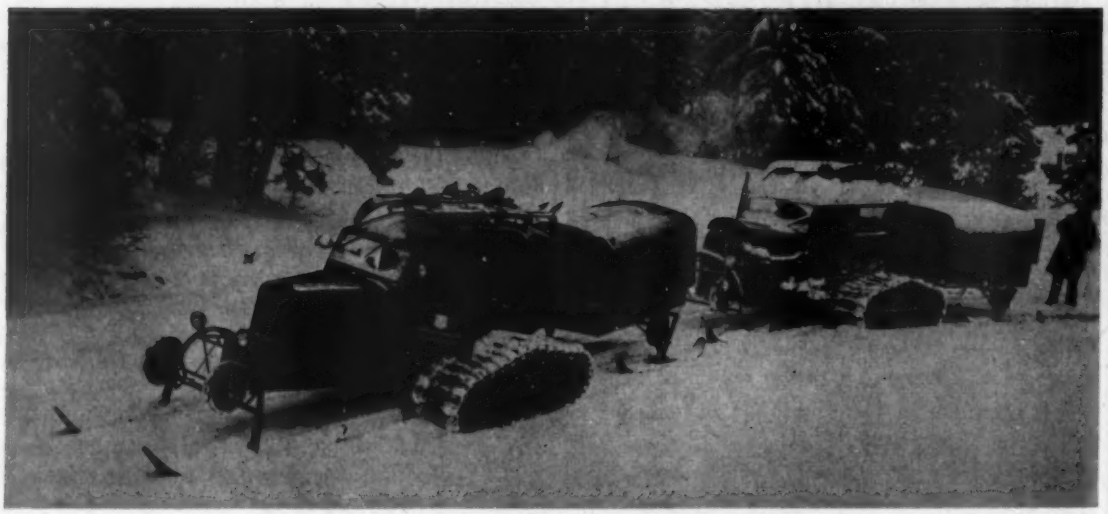
He said that in 1948, the year of the last major flood on the lower Columbia River, there had been no evaluation of the soil moisture status. There had been heavy rains, however, leaving the ground saturated so that, he added, virtually all of the melting snows ran into the rivers instead of being absorbed in part by the soil.

To measure soil moisture deficiency electrical equipment developed by the California Forest and Rain Experiment Station has been undergoing test for more than a year by Homer J. Stockwell, snow survey leader for Colorado and the Colorado Basin. Stockwell suggested it cost about $250 for each unit and its installation.

However, a radio-isotope snow gauge, including a radio transmitter, now being tried by the Corps of Engineers at Pine Flat Reservoir on the King's River of Central California, costs about $15,000 for equipment and installation.

David Rockwood of the Army Engineers North Pacific Division Office in Portland said the snow gauge, developed cooperatively by the Corps and

(Continued on page 201)



Machines help speed the measurement of snow.

Farm and Home Register Awards

Happy occasion: Standing—Glenn Hindman, Virgil Dozark, Governor William S. Beardsley, Farley Henkes. Seated—Mrs. Glenn Hindman, Rachael Hall, Mrs. Virgil Dozark, and Mrs. Farley Henkes.

By FRANK H. MENDELL

THE first year for the Iowa Soil Conservation Achievement Awards Program, sponsored by the *Iowa Farm and Home Register,* was climaxed at a luncheon in Des Moines in November. Co-sponsors were Iowa Association of Soil Conservation District Commissioners, Iowa State Soil Conservation Committee, Iowa State College Extension Service, State Department of Agriculture, U. S. Soil Conservation Service, and Iowa Chapter of the Soil Conservation Society of America.

NOTE.—The author is state conservationist, Soil Conservation Service, Des Moines, Iowa.

The 27 area winners and their wives, together with representatives of the cooperating agencies and of press and radio, were guests of the *Register.*

Governor William S. Beardsley delivered a congratulatory address.

The contest was divided into three divisions: one for owner-operators who had the most outstanding conservation programs, another for owner-tenant operated farms, and a third for soil conservation district cooperators who made the most progress in the 2 preceding years. This was limited to farmers who became cooperators after January 1, 1951.

The 936 soil conservation district cooperators who entered this program came from 78 soil conservation districts.

J. S. Russell, editor of the *Farm and Home Register*, stated that the purpose of the awards was "A program to foster the establishment of needed soil conservation practices and proper land use."

The winner in Division 1 was Farley Henkes, Clayton County Soil Conservation District. Winning in Division 2 were Rachael Hall, owner, and Virgil Dozark, tenant, Crawford County Soil Conservation District. In Division 3 the laurels went to Glenn Hindman, Audubon County Soil Conservation District.

Each of the 27 area winners was given a certificate and a fountain pen with name engraved. The ladies were given perfume.

Each of the top winners—Henkes, Hall-Dozark and Hindman—received a wrist watch. A $500 Savings Bond went to Mr. and Mrs. Virgil Dozark, sweepstakes-winning tenants.

The Dozarks moved to the farm 15 years ago when the land was eroded, crop yields were very low, gullies were prevalent, and weeds were thick. During these years Virgil, with the cooperation and support of his landlady, Rachael Hall, changed this into a top farm from the standpoint of erosion control, high yields per acre, a balanced livestock program, and security for present and future. The judges were unanimous in their selection of the sweepstakes winner. Those who know the Dozarks and the conservation program they have established on the 240 acres they operate were pleased to see the recognition come to them.

Every winner in this achievement award program has applied on his farm the kind of a conservation program that is also needed by his neighbors.

CLARENCE KAISER of INDIANA

"Mr. Grassland" might well be a suitable name for Clarence Kaiser, chairman of the board of supervisors of the Crawford County (Ind.) Soil Conservation District, and an outstanding champion of conservation and grassland agriculture in southern Indiana.

Kaiser lives on what would be considered an average hill farm. Most of his 78 acres of pastureland was in persimmon, sassafras and briers when he purchased the farm in 1919. His 110-acre farm had been rented for 35 years, and what little was still being cultivated was badly eroded and low in fertility. He spent the first 9 years clearing and grubbing fields and building fences, raising the major portion of his needed feed from adjacent rented land. When 60 acres had been readied for cultivation, Kaiser began a 3-year rotation of corn, wheat and meadow. He had 3 mules, 20 head of sheep, and 2 cows. In 1931 his mules ran away with the binder, completely demolishing it. A good set of farm records convinced him that wheat, as a cash grain crop, hadn't paid well enough to make possible the purchase of a new binder. Some other method of handling his eroded sandstone soils for better returns had to be devised. More production and a heavier livestock program were necessary to have an economic operating unit.

Kaiser decided it was time to try something else. He and the county agent established some grass-clover fertility test plots and measured the increased hay yield against the increased lime, fertilizer and seed cost. To Kaiser's surprise, the net return from the fertility plots was far more than anticipated. The more responsive plots had returned five times as much forage as the untreated ones. It was at this time that he made his decision. He said, "If those small test plots will make that much forage, then why won't my whole farm do it? I can make my farm five times as large without increasing the acreage."

He immediately set about getting his entire farm into clover and grass. He started out by working up one field each year. He had helped bring lespedeza into Crawford County, and now he decided that a new clover—ladino—might suit his conditions and those of many other hill farmers. He is credited with doing as much as any one to bring ladino into our Indiana fields. He is always eager to try out a new grass or clover that might possibly increase his forage and improve his soil conditions.

Clarence Kaiser.

Clarence is still operating the farm. The same acreage now produces annually about 90 tons of hay and 320 days of pasture, which together help support 260 head of sheep, 40 head of cattle and 1 saddle horse. His woodland is protected from fire and livestock, and is being managed as a crop.

Many people, groups, and organizations have visited Clarence to see firsthand how he has done this remarkable job. He estimates that 9 to 10 thousand people have visited his farm in the past 5 years. Some people have suggested jocularly in the past that Crawford County should be given back to the Indians. You don't hear that kind of talk any more. Instead of turning his back on a bad situation, Clarence Kaiser has been a leader in developing a new and successful grassland agriculture. He has been active in whatever county or community endeavor has promised to bring better conditions for farm people. He has appeared as speaker on many programs to explain his operations, and he is well known for his wit and humor in reciting poems of his own composition.

Besides serving as chairman of his soil conservation district since its formation 5 years ago, he is active in the county Farm Bureau, Farm Bureau Co-op, R.E.M.C., and a staunch member of the county extension committee. He is a faithful churchman and subscribes to the philosophy that whoever deliberately destroys the good earth has committed a dire sin.

It would seem that Kaiser has met the test of the old Persian Proverb, "God will not seek thy race, nor will He ask thy birth, alone He will demand of thee, 'What hast thou done with the land I gave thee?' "

—Donald Sloan and M. M. Merritt

"SCIENCE" OF SNOW TAUGHT

(Continued from page 198)

the Weather Bureau, was based on the principle that water absorbed radiation.

Cobalt-60, a radioactive isotope, is placed in a covered concrete box at the surface of the ground. Mounted above on a frame, placed high enough to surmount the expected snowpack, is a Geiger counter. The radiation thrown off by the cobalt varies with the amount of snow lying above. The impulses received by the counter from its radiation are transmitted by radio some 30 miles.

In measurement by small airplane, the pilot lands near the snow course and takes his reading or flies past a marker with a vertical series of arms. He photographs it or notes how many of the arms are sticking out of the snow. This gives him the approximate snow depth but not the density.

Such methods are looked upon as satisfactory for early season reports and as valuable, from a supplemental standpoint, at the crucial date of April 1, when every course in the west is measured. Most of them are measured at least once a month from January until May.

San Pedro is Less Greedy

By MERVIN H. WALLACE

ARIZONA'S San Pedro River again is confined to its original channel where it runs through John Weik's 440-acre farm at Hereford. By the end of 1937, the river had cut away 10 acres of the farm and made several more acres unfit for farming because of headcutting by floodwaters.

In 1938, Weik began to control bank cutting. He was aided by the CCC Camp at Naco. Several hundred large trees were tied under the banks with cables. They were backed up with plantings of black willows and cottonwoods. Each year since 1938, Weik has kept the tree strings in good repair, and has carried on a continuous program of tree planting.

Now, after 13 years, the river is back in its original channel and the 10-acre area has healed up and filled in so that part of it can be utilized for farming; the rest is growing grasses for livestock. Tree growth along the banks is so dense that there is no longer a serious threat of bank cutting.

To prevent further headcutting by a tributary, Greenbrush Draw, and by irrigation tail water, the CCC tractors built a large dike the full length of the farm next to the river, and several diversion dikes. Excess water is put through the dike through pipes. Weik reports that dike repairs and gopher control campaigns have been carried on consistently. The dikes are in excellent condition.

The control of the San Pedro is only one of many conservation measures on the farm. When Weik came to the valley in 1922, he grew truck crops on 4½ acres along the river on a share basis. This land was all washed away by 1929, when Weik returned to Hereford and bought his present property. Out of 65 acres that had been farmed, only a very few acres remained that could be irrigated. The land was very rough. The bottom land was badly gullied by floodwaters from Greenbrush Draw, leaving very little usable land. Some of the gullies were more than 10 feet deep. For 25 years Weik has carried on a constant battle with nature; he now has 120 acres of land in cultivation. With production running as high or higher than the average for the valley, all of the gullies have been filled in and the land is fairly uniform in topography.

Greenbrush Draw no longer is a menace. In fact, it now adds to the farm income. The wash no longer runs uncontrolled, no longer cuts gullies. He takes out a controlled amount of floodwater and uses it for irrigation. This has also proved to have its drawbacks because of the uncertainty of floodwaters which have the habit of either not coming at all or coming when the hay is ready to cut or bale.

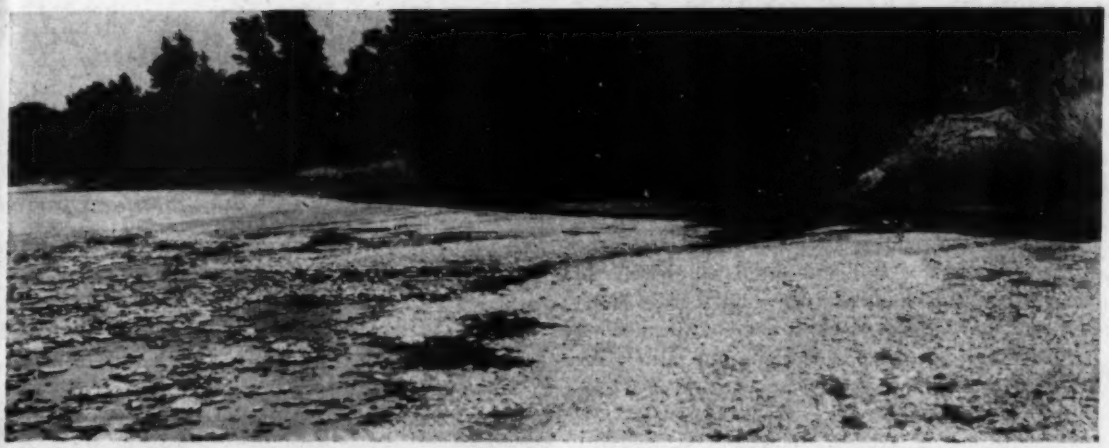
In 1942, while his two sons were in the armed services, Weik started to build a large masonry drop in Greenbrush Draw just above his farmland. The drop was completed in 1945. It acts as a diversion for taking out a small part of floodwater into his irrigation ditches, allowing the balance to go on down the wash. He has had to add to the structure from time to time and is planning to add 10 feet to the apron next year. The neighbors helped with rock hauling and cement mixing. All of the rock was hauled on trucks from the Huachuca Mountains 12 miles away.

Weik paints a grim picture of the early days in his farm development. He started out with only about $30 in his pocket, and with a farm riddled with gullies and largely bereft of topsoil. The first years were lean and it was a struggle to make a living, meet payments on the farm. By hard work and long-range planning, assisted by his district and SCS technicians, he gradually attained prosperity. Principal crops are alfalfa and small grain. Non-cultivated land supports 50 to 60 head of cattle, with slight supplemental feeding.

The irrigation system now consists of 4 small wells widely scattered and not too conveniently located. They produce about 275 gallons of water per minute each. The tending of water from these wells sometimes runs into almost a 24-hour day. Two small irrigation reservoirs in the middle of the farm relieve this to some extent. A new 16-inch well has just been tested at 2,000 gallons per minute, and a new 5-acre-foot reservoir has been built. The well and reservoir are so located that the entire farm can be irrigated.

Weik is reorganizing his fields and ditch system

NOTE.—The author is area conservationist, Soil Conservation Service, Safford, Ariz.



The black willows and cottonwood trees attest the victory which has resulted in complete bank stabilization.

Weik and son Alfred are partners now. Here Alfred is seen maneuvering the new tractor in construction of 5-acre-foot storage pond.

to reduce the labor for irrigating. He plans to level all fields. The new ditch layout will be concrete lined. He plans to develop an additional 80 acres, bringing his cultivated acreage up to 200. His plan will be similar to his present system except that it will include some permanent grass pasture. His livestock numbers will be somewhat increased.

Weik is proud of his accomplishments and enthusiastic about the future. He has been a supervisor of the Hereford Soil Conservation District since it was organized in 1944, and is active in community affairs.

His Pastures W re

New England's 1953 champion year ar ma
duction. He set a national example gras
methods, good management. And hieven
from the hands of the ent of

By HU EAME

THIRTY acres of wet land that he drained and converted into lush ladino-grass pastures, as part of his cooperative program with Tolland County Soil Conservation District, tipped the scales in favor of Ernest Kupferschmid, Ellington, Conn., dairy farmer, the 1953 champion among 3,000 entrants in the annual New England Green Pasture Contest.

In one of the tightest six-state contests that the program has ever had, Kupferschmid first won the competition in Tolland County, and then in Connecticut where 310 farmers strove for top honors. In the finals, with 18 first, second and third place State winners competing, Kupferschmid was declared the top man for all New England.

Ernie has been building better pastures since 1941 when he took over management of the farm from his father. He was born on the place and had been a full time worker there since his grammar school days. In 1948, the first year of the New England contest, he was one of the three Tolland County winners. Two years later, he was again among the top three there and competing for the State title. In 1952 he stepped out and won the efficient fall milk production program championship in Tolland County, with an average output of 1,200 pounds per cow. His grain feeding ratio then was 1 pound of grain to 6.6 pounds of milk, and his production through the year never varied much from 20 cans per day.

In his 84 head of grade Holsteins he has 46 milkers and 38 young stock. In August 1953, from 43 milkers the average was 1,333 pounds of milk and 45.6 pounds of butterfat per cow and his grain-milk ratio was 1 pound of grain to 5.7 pounds of milk.

Kupferschmid owns 2 farms totaling 180 acres, and rents 56 acres more. About 160 of the 236 acres are in cropland, the balance in wet land. Backbone of his operations is his forage. In 1953 he had 87 acres in the ladino-grass mixture, and 12 acres in permanent pasture. Production from about 50 of these 99 acres was cured for hay, 25 acres of alfalfa being cut 3 times. A fourth cutting in some fields was ready in late September.

In April he had 11 acres of rye available for pasture. By early July, 12 acres of oats in new seedings were ready for the cows, and when August came 10 acres of Japanese millet were waiting for the herd—altogether, about 7 months of top

Ernie Kupferschmid receives his New England ship tr
Hart rant.)

re the Greenest

year ar made progress in building milk pro-
mple grasses and legumes, conservation
And hievements brought a coveted award
the ent of the United States.

By HU EAMES

and hip trophy from President Eisenhower. (Photo by Har rant.)

pasture. In the reconditioned wet land, corn went in when grass came off.

Cheered by the results from reconditioning his wet land, Kupferschmid has asked the Tolland County Soil Conservation District to guide him in draining and clearing 55 more acres of boggy land. "Drainage is too important to guess at. My eye isn't good enough for use as a substitute for a level," he comments.

Ernie has been working with the soil conservation district since February 1947, just after it was organized. With the help of the Soil Conservation Service technicians who work with the district, he dug 6,400 feet of open ditches that drained 18 acres and benefited other areas, and treated 50 additional acres and put them under good management. The reclaimed acreage, he believes, are about the best year-after-year productive land that he has, because it resists drought. He got the proof during 1953's severe drought when his higher land, like that of other farmers, was bone dry. In the reconditioned wet land, in September when the torrid wave was at its peak, he was able to reach down, pull out a handful of ladino-grass and say: "See, the roots are still wet!" An observer noted that these fields were "as green as the Emerald Isle" and that the "growth was thick and knee high."

Ernie, a 41-year-old bachelor, is a son of Swiss parents who reared 3 sons and 4 daughters. Since their parents deaths, brother Elmer has been Ernie's housekeeper, with gardening and beekeeping as sidelines. Two hired men help with the farming. Ernie is a cheerful, alert and energetic chap who has aviation as his hobby. He owns and flies a 2-place plane, takes off and lands on his pastures which he says "are as smooth as any airport." He flies mostly for fun, and, as he says with a twinkle in his eyes, "to look at my farm and my neighbors' farms. When they are greener than mine, then I know something is wrong here and get to work on the problem."

He credits much of his success to assistance received from agencies like Connecticut University's Extension Service and USDA's Soil Conservation Service and PMA. He's active in Farm Bureau and was 1953 chairman of his community PMA committee.

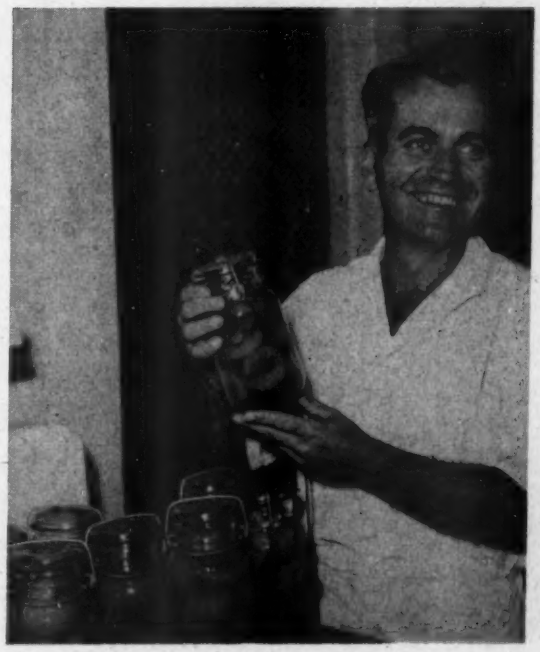
Winning of the New England green pastures title has brought new demands on the time of this very busy farmer. He's swamped with invitations to

Prize forage, prize cow, and Ernie Kupferschmid himself.

speak here and there, and between farm work and public appearances has to give a lot of time to visitors who come to see the championship place. For example, the other day he finished a barn meeting of cattle breeders at his place at 4 p.m., rushed into the house, bathed, shaved and dressed in half an hour, climbed into his plane and at the evening dinner hour was the guest speaker at the annual gathering of artificial breeders at Poughkeepsie, N. Y.

When he spoke before the members of the New York Farm Club which meets at the Columbia University Club in Manhattan, the chairman of the board of Standard Oil of New York and a high official of Standard Oil of New Jersey were among those who quizzed him after his talk. All are always invited to "come up and see me some time," and many do, particularly when there is good small-game hunting at Ernie's place.

At height of 1953 drought, Ernie pulls up a handful of ladinograss and exclaims: "See! The roots are still wet!"



Elmer handles his end with expertness; he turns out a fine can of peaches and bakes a good loaf of bread.

His plane helps. When Ernie, aloft, notes a greener field than his, he tries to figure what is wrong and goes to work on a new problem.

Correspondence takes a heap of his evening hours. Questions about how or why he does this or that roll in by mail from all parts of the country, and he tries to answer all of them. A farmer in Indiana wants details about his seeding practices, and a woman in Oregon, who owns a farm in Nebraska, wants to know about land clearing, the kind of equipment he uses, cost of the work, his preferred seed varieties, and how much fertilizer he uses.

Most of these developments come out of the attention that newspapers, farm magazines and other

Ernie displays some of his millet for fall feed to County Agent John Elliott—right—who helped him with his grassland program. (Photo by Ted Blakely, CMPA.)

publications have given to his championship achievement, and to the attention that was focused on him, by radio and television, when President Eisenhower presented the New England championship trophy to him at the Governors' luncheon at the Eastern States Exposition.

Bad luck comes along with the good. For instance, when the Middlesex County Farm Bureau wanted him as a guest speaker at its annual dinner meeting, he could not go because he had lost one of his hired men and the other, hurt in an accident, had been taken to a hospital.

Ernie takes it all in stride, really gets a big kick out of the championship business . . . and his hat still fits.

"MR. MAC"

By L. L. LOUGH

THE land is greener, now—largely because of "Mr. Mac." Out where West Virginia skies lean over corn and grass and trees, they also call him "J. B." and "The Commissioner." The state knows him as the Honorable J. B. McLaughlin, Commissioner of Agriculture. But nicknames carry greater dignity among big men and mountains.

Six-feet-two, "Mr. Mac" has dignified his State's land management officially for two decades. Last fall, he moved into his 21st year at Charleston, a 6th term in the dual role that includes the chairmanship of the State soil conservation committee.

The glimmerings of a brighter day for West Virginia's hard-pressed farmers showed early in "Mr. Mac's" career. He welcomed the Nation's first encampment of the Civilian Conservation Corps, and speeded a better land use program for the State's millions of eroded acres. To do this, "Mr. Mac" grasped the opportunity offered by soil conservation districts.

The commissioner's support of the struggling, new districts is typical of his unfailing wholehandedness. His 10 years as a Farm Bureau leader had taught him that farmers need more than a pat on the back. With the money and facilities he helped secure, 14 districts got going. Today, a quarter million dollar appropriation provides heavy machinery for rugged conservation engineering. A fund that has grown from $10,000 to $100,000 biennially in "Mr. Mac's" reign furnishes district offices with all the appointments of going concerns. Besides, the soil conservation committee has boosted district operations with the full-time assistance of a state-employed executive secretary, a field agent, and an equipment mechanic.

This kind of backing has pushed West Virginia into the top ten bracket of states in conservation achievements. The results show in the fourfold leap in farm income since the gray days of 1932; in the sleek, homegrown cattle now welcomed by breeders throughout the world; and in the scores of bustling new farm market centers.

The one-time farm boy from Braxton County sees the greatest change in the face of the land, itself, where thrifty new pastures have replaced impossible plowland; and contour strips have healed the gullies of yesteryear; and farm ponds and neat troughs have answered the plaintive cry for water.

NOTE.—The author is state conservationist, Soil Conservation Service, Morgantown, W. Va.

Nearing threescore and ten, "Mr. Mac" still has need to assign his surplus energy. He's a farm cooperator with both the Western and Eastern panhandle soil conservation districts. At Apple Pie Ridge, near Inwood, he's busy converting his latest 150-acre venture from rundown orchards to a grassland, livestock enterprise. His inventive turn of mind has produced an ingenious soil mixer and a water pump. He gives other "spare time" to the Future Farmers of America, to whom he has devoted 20 years; while Morris Harvey College has grown under his continuous trusteeship ever since its founding, 30 years ago.

A richer, family life—both for the rural folk he serves and for his own household—has been one of the abiding goals of "Mr. Mac's" life. He's understandably proud of son James, a distinguished flyer in World War II, and daughter Eleanor, who serves with the Red Cross in New Jersey. And he hopes that somewhere along the line he's contributed a little toward a better America for his three young grandchildren. They're his favorite hobby!

Wide Range of Land Use in One Massachusetts Area

Truck, poultry, fruit and dairy enterprises invoke many modern conservation practices. Here is a sampling of experiences common to Worcester County farmers.

MORE than 1,000 Worcester County farmers have learned the value of conservation methods as applied through soil conservation districts. They are among those farmers who led off in conservation in Massachusetts in 1945.

Application of the district program to the needs of *any* farmer seeking help calls for a high degree of flexibility. In this Worcester County proving ground there is an amazing degree of diversification.

Full-time Worcester farmers, operating in three districts in the county, are reaping benefits in such highly specialized production as fruit, market and canning vegetables, dairy, poultry and other livestock, and general farming. There is a wide variety of cash crops. The 1,100 farmers operate on small, medium and large scale. They include the young and the old. They are in the valleys and on the hills. Through their districts they have received technical and other on-farm assistance on nearly 150,000 acres of land on which they make their living, build their security for the future, and at the same time provide an equal opportunity for those who follow.

Orland C. Doe had a problem. His two sons, Whitney and Bill, finished school, married, and were ready to settle down at Hawbuck Orchards, at Dudley. Hawbuck, one of the largest commercial orchards in the State, had 3,500 trees on 100 acres. How to get more acres of fruit, enough production to support three families, was the problem.

Howard Borggaard plants vegetables on modified contour as help in maintaining desired moisture levels.

The answer was found in the Northeastern Worcester County Soil Conservation District, when the Does and SCS technicians made a complete conservation plan. Emphasis was focused on better land use because there was unproductive land either burdened with brush and stone or too wet.

In 1950 the Does cleared and renovated 10 acres; the next year, 15 more. That made room for 1,000 more trees. In another 10-acre tract fruit trees were being lost because their feet were wet too much of the time. Tiling was installed at a cost of $400. Production improved. A lot of stone walls were removed. This meant that work could be done with greater ease and at less expense.

While the Does had too much water in some parts of their orchards, elsewhere there was not enough water to meet the spraying needs. They were traveling 40 miles daily to get such water, at a cost that ran into hundreds of dollars. To end this problem and also to provide fire protection and cut insurance premiums, a 500,000-gallon farm pond was built.

"What we have been able to gain through our conservation plan, gives us a nicely balanced operation," says the owner. "And we find ourselves with a recreation spot and some fishing for dad. When our newly planted orchards come into bearing, first peaches, then apples, we'll have reached the limit in quantity production. That's why we're centering our attention on quality."

Back in 1949's tough drought, Freddie Cournoyer, Paxton market vegetable grower, almost lost his shirt because he hadn't given attention to water management. Determined not to let it happen again, he enlisted the help of the Northwestern Worcester County Soil Conservation District, and built a 60,000-gallon farm pond which was fed by springs and a small stream. It cost him $70, and he got $40 of this money back through a U. S. Department of Agriculture cost-sharing program for establishing permanent conservation practices. Since then, in every field where he operates, including rented land, he is backing up the pond with a small dugout wherever a spot can be found.

In 1952, and again in 1953, Freddie was able to irrigate his vegetable crops 8 to 10 hours daily, 5 days a week, June 10 through August 15, at a rate of 400 gallons per minute, pushed through iron pipes and sprayed by a giant nozzle 30 feet in the air. A circle with a 225-foot radius can be covered from one point.

Other farmers in the neighborhood, lacking this sort of dependable water facilities, were lucky to get one good picking of market vegetables. More often the harvest was skimpy. Freddie had as many as three pickings that were high in quantity and quality. Ninety percent of his sweet corn graded No. 1. Non-conservation and non-irrigating growers produced 10-pound to 15-pound squashes. Freddie produced 75-pounders. All of his production, including berries, potatoes, beans, iceberg lettuce and tomatoes, came off class 2 land—his best.

Last year yields of 450 bushels of potatoes per acre on one plot, and 500 bushels per acre on another, were obtained by Cournoyer without irrigation. Freddie did this in a drought year by maintaining organic matter in the soil, and working the land as little as possible to avoid compaction. Such water conservation practices permit the soil to absorb and hold water.

Cournoyer's success stems largely from his practice of backing up every $3,000 he invests in his land with another $3,000 to protect his stake. He's been farming in the Paxton area for 12 years, owns 42 acres and each year leases 35 more. All of it he handles the conservation way.

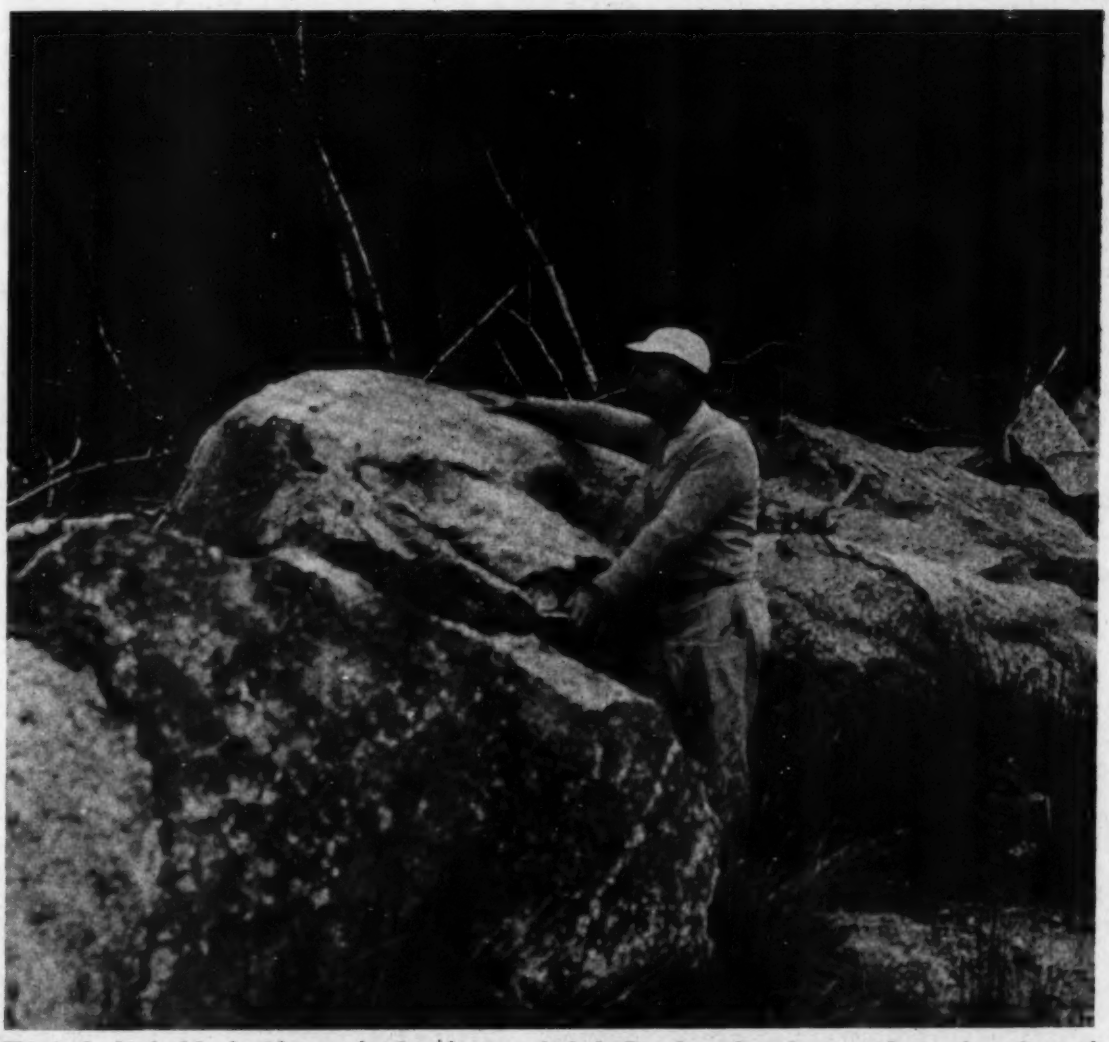
Starting with a worn out, severely eroded, badly gullied place, with depleted soil structure, his enterprise clicks now because he has built production back to a high level and put his water resources under careful management. Through work done with his district, he's now prepared to meet a wet or a dry season or other unfavorable conditions.

When there is superabundance of water from long hard rains, or even a flash flood, his diversion terraces, sod waterways, contour stripcropping and cover crops disarm erosion and slow down runoff.

When it becomes dry and his crops need water he backs a portable irrigation system out of the equipment shed and gives his crops the drink they need. Thus, he meets a drought head-on, like a New England village fire department.

When Bill Jamsa came back from the war to relieve his dad, Jack Jamsa, by taking over management of Skyland, a poultry farm his father started at Westminster 23 years ago, Bill made out nicely with the help of his Northwestern Worcester County Soil Conservation District.

The Jamsas needed more range, so they could have larger flocks and increase egg production, their sole cash crop. Technicians, working with the district, helped them establish good, rugged sod on which birds could roam for a year, before the land was laid away for 2 years of rest. Bill Jamsa started this expansion by clearing 3 acres, and is rapidly moving toward a goal of 10 more. That will give him 3 ranges instead of 2, and permit him



This is the kind of land, with trees, brush and stone, which the Does have cleaned up to make way for a thousand more trees at their Hawbuck Orchards.

to get full service from the rotation system. Run-off from slopes had become a hazard to farmstead, other buildings and the flock. Bill Jamsa wiped out the menace by building a diversion ditch that handcuffed the runoff.

Arthur Snow, a Charlton dairy farmer, is a good example of how a farmer can become a real conservation operator without spending a lot of hard money, if he is willing to do the establishment with his own farm labor and equipment.

Before 1948, when he farmed with conventional methods, Art Snow's hillside fields were badly washed and torn. He wasn't getting much good out of lime, fertilizer and manure.

Now he is benefiting from 23 acres of contour strips and an 850-foot diversion ditch. Seven highly productive acres have been added by clearing and renovation. Operations have been eased and made less costly by removal of stone walls that interfered with his use of labor-saving machinery.

Corn and grass rotations, strips and diversion, stopped erosion in its tracks and permitted Snow to rebuild soil fertility and get full values out of lime, fertilizer, manure, and better seed varieties.

Arthur Snow licked erosion and built back his soil to top productivity. Among his measures were alternate contour strips of grain and grass, and a diversion ditch that runs across the slope near the top of the hill.

Snow says, "I think the production dividends now starting to roll in will continue to pile up faster and faster."

Harold Easterbrook and his son Henry, who are general farmers at Dudley, make good use of conservation farming in enterprises that include poultry, beef, sheep, and fruit. They have 45 acres in apples, raise 600 turkeys, and handle 40 head of beef animals and 150 sheep. Most fruit and turkeys are sold to customers who come and get them. Clearing and renovation of wasteland has provided more pasture and opened the gate to twice as many sheep.

Production increases have been made possible by working with 12 acres that had not been cleared, and 20 acres of wet land that was grown up to alders and other brush. These acres are now in lush pasture and fruit. Five diversions and outlets protect land that drops 50 feet within a quarter mile. The Easterbrooks built 2 of them with their own farm equipment and labor. About 1,300 feet of waterways improvement and protection work has been done and 1,200 feet of multiflora rose fence have been built.

Since 1886 the Borggaards—Howard and his father before him—have been producing fresh vegetables for Worcester people, on a small acreage in the city's outskirts. More than 90 percent of their production was sold at the farmstead stand. There never was enough to meet demands from a growing army of customers.

Less than a decade ago, how to get more vegetable production was a pressing problem with

By clearing brushy waste tracts where wild grasses and weeds stand waist high, Jack and Bill James are developing 13 more acres of range that will give them additional room to rotate their poultry. More birds and more eggs are their production goal.

Howard; he had 6 of his 10 acres of cropland in production. With the help of technical services received through the Northeastern Worcester County Soil Conservation District, he now has 20 acres, of which 12 are in vegetables. More wasteland is being brought into use.

Cropland terraces, in a modified contour pattern, are the base from which Howard Borggaard has successfully fought erosion resulting from runoff. A bit of drainage work here and there has wiped out the wet spots. Clearing has removed obstructing stone walls and hedges. What to do with the many stones was a tough problem with Howard until he found a contractor who could use them in construction jobs.

That's how Howard Borggaard has become able to serve more and more customers with more and more of the good fresh produce they want. Two crops come off his land every season. Among them there is nothing prettier than the asparagus, corn and potatoes that come off the contour strips. In the winter the land is kept under a rye cover.

Drainage problems vexed Hamilton Lincoln at his 126-acre Brookfield Orchards, one of the largest fruit enterprises in Massachusetts. These problems were taken care of under a complete conservation plan worked out with his Southern Worcester County Soil Conservation District.

Lincoln took 4 divided pieces and put them together in a single unit of 15 acres. Clearing and drainage added 7 new acres to 8 where it already was practical to operate.

One of the dug-out waterholes that enable Freddie Cournoyer to contend with severe drought.

The other day, when he took a brief breather from an almost endless rotation in farm-management duties, Lincoln looked over the improvements and observed: "This conservation farming idea is as good for orchardists as for other farmers. It has helped all 126 acres of this farm."

In Massachusetts, all other counties have soil conservation districts, too. They include more than 5,300 farmers, operating on nearly 600,000 acres. And a recent summary lists this fine record of accomplishment in the State: 23,398 acres pasture improvement, 2,874 acres contour strips, 120.03 miles open drains, 115,855 feet closed drains, 45.20 miles diversions, 8,672 acres land clearing, 15,836 acres cover crops, 14,424 acres rotations, and 564 farm ponds.

Good Start in a Rugged Country

Pioneer farming in Michigan's Upper Peninsula involves special problems.

Ten years ago woodland pastures were common. Today they are rarely seen under the intensified pasture-improvement program.

By ALLEN C. WEBER

IN Menominee County, Mich., at the tip of the Upper Peninsula, farm people and others saw the need for soil conservation when they voted in a district in 1943. Albert Kipfer, one of the successful older farmers, who became the first chairman of the local governing body, voiced the thoughts of many when he said, "This is new farming country. Let's start now to save and improve the soil we have."

Blasting for muskrat habitat in peat soils of Menominee County.

Steve Kakuk, private contractor, uses a bulldozer to bury boulders in a field day demonstration.

So the new district went to work. It was in practically pioneer farming country. Some of the problems were different from those found in most other districts. Most of the 1,850 farms had crop acreages too small for modern machines. Some of the farmers were former lumberjacks who remained after the big timber was harvested. Land on steep slopes was being farmed when it should have been left in trees. Even though land had not been in cultivation long, erosion was getting a good start. Stone fences stood in the way of contour farming and stripcropping, and grasses and brush of no economic value grew in open areas of peat marsh.

The new board of directors took stock of the situation and mapped a program. With assistance from the Soil Conservation Service the program got under way.

Later, Elving Thorpe, operating the farm he was born on 50 years ago, said, "I was the first cooperator in the new district. The farm plan now in operation has meant a lot in both money and convenience. I wish there had been a district here 20 years ago."

NOTE.—The author is work unit conservationist, Stephenson, Mich.

Allen C. Weber, work unit conservationist, stands in ditch blasted in peat soils in an experiment to establish a muskrat habitat. The Michigan State Conservation Department cooperated with the soil conservation district.

Orville Cappaert was one of the many returned World War II veterans who asked for assistance in making a soil conservation plan as one of his first steps after purchasing his place. He said recently, "District Assistance got me started on the right track. I think it's a 'must' for the beginner."

Present chairman is Wendell Sandahl, also a World War II veteran and serving his second term on the board. He feels that forest management will always be an important part of the soil conservation program in his district.

Hundreds of thousands of trees have been planted on land not suited to tilled crops. Seven thousand acres of contour stripcropping and 26,000 acres of pasture seeding have been established, along with an impressive record of other practices.

After World War II it was conservation farming that got Orville Cappaert and his family started on the right track.

The district established its own nursery this year. It operates a bulldozer and marsh plow. This year they received a mechanical tree planter as a gift of the local bank and a dealer in wood products. Many stone fences and stone piles have been moved or buried to make way for soil conservation practices, some land is being cleared, and some farms have been combined to make larger ones. Several hundred acres of Reed canarygrass have been seeded in wet peat or muck land for pasture.

"The record doesn't look bad at all," says Chairman Sandahl, "It's at least something we can stand on while we reach for better things."

THIS IS DEFENSE, TOO.—A recent news dispatch from Ft. Hood, Tex., reports that the 61st Engineer Battalion, which does construction work, offered free dirt to other Army units there. The "Friendly Topsoil Service" was to help the other units improve their grounds.

FFA WINNERS.—National winner in the soil and water management awards program, sponsored by the FFA Foundation was Joe Coleman of Mineral, Va. Regional winners were: Norman B. Strebin, Gresham, Oreg.; James H. Maguire, Philipsburg, Pa., and Curtis J. Bohannon, Greenville, Ill.

NATIONAL 4-H AWARDS.—Winners in the National 4-H soil and water conservation awards program were: David E. Peterson, Morrison, Colo.; Jack Van Horn, Pomona, Kans.; Duane S. Sargent, Simpson, Mont.; Derald W. Suffridge, Brinkman, Okla.; Walter N. South, Bloomington, Ind.; Carroll F. Leatherman, Jr., Myersville, Md.; James L. Baker, Ithaca, N. Y.; Don T. Elledge, Maybank, Tex.

MORE MOUTHS TO FEED.—According to statistics published recently, there will be about 40 million more people in the United States to feed and clothe in 1975 than there are now. The birth rate in 1953 was 24.6 per thousand, a little less than that of India (26.8), and is the highest rate in the history of this country. The estimated population increase is probably conservative.

Observations made recently of agriculture in nine counties of Africa, Asia, and Europe have made me especially conscious of this population growth in relation to available good land. In Egypt, for example, some 25 million people must get most of their food from about 6½ million acres of land. This is comparable roughly to a population of more than a billion in the United States. Part of the price of such intensity of land use obviously is paid in terms of living standards. There are other countries with similar population pressures on the land where the most that can be expected for many is survival.

—W. R. TASCHER

Safer Superhighways

(Reprinted from *Science News Letter* for December 12, 1953.)

Research studies conducted by Motor Vehicle Research, Inc., South Lee, N. H., indicate that a popular Japanese rose, if planted along America's new superhighways, could cut traffic deaths. [New value for an established conservation plant!]

The multiflora rose can be made to grow into a matted hedge from 6 to 10 feet tall. It gently absorbs the shock of collision when an automobile runs off the road. In contrast, large trees absorb the shock abruptly, endangering the car's occupants.

Test cars have plowed into a heavy growth of the Asiatic rose at speeds up to 30 miles an hour. The tangled branches stopped the car in 11 feet without harming driver or passengers.

Such stops approximate "panic stops" on the highway when motorists jam on the brakes in emergencies. The researchers said they believe these crash stops could have been tolerated even at speeds of 50 miles an hour.

Andrew J. White, director of MVR, Inc., states that accident investigations over many months have revealed that many lives are saved by small trees and shrubs along highways.

This led him to seek a hardy, rugged scenic shrub that could be planted along the margins of superhighways and in the middle dividing strip often filled with grass. Ideally, the shrub should thrive in many types of soil, requires little or no attention, restrict its growth height and retain its automobile-braking qualities even when denuded of foliage in winter.

The multiflora rose seems to offer the best compromise of all the desired qualities.

Mr. White adds that such landscaping of highways also would produce these benefits: reduced headlight glare at night from on-coming cars, reduced force of wind gusts which sometimes make driving difficult and reduced numbers of domestic and wild animals on the road. The rose hedges also might double as living snow fences.

He estimates that highways could be equipped with the multiflora rose at about 5 cents per foot of road. The plants will grow after being crushed by a car and "cannot be killed out, even when burnt over," he added.

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